



SESSION

In Situ Post-Remediation Performance Evaluation

WEDNESDAY 20 SEPTEMBER

17.00 – 19.30 CEST (Central European Summer Time)

Opening

17:00 Welcome from SERDP-ESTCP International and Remtech Europe

Marvin Unger (SERDP-ESTCP) Marco Falconi (ISPRA, Remtech Europe)

Presentations

17:05

- Post-Remediation Performance Assessment at a Petroleum Impacted Site/ Jovan Popovic, Ph.D., NAVFAC
- Assessing Post-bioremediation Sustained Treatment - Fact Sheet/ Travis McGuire, GSI Environmental Services, Inc.
- MNA Rate Constant Estimator User's Guide and Tool/ Anthony Danko, Ph.D., NAVFAC EXWC

19:20 Questions and Answers

Marvin Unger (SERDP-ESTCP) Marco Falconi (ISPRA, Remtech Europe)

19:30 End of the training

Register yourself in the Google form <https://forms.gle/BMpWNxZMkTaX9hcDA>

Post-Remediation Performance Assessment at DoD's Petroleum Impacted Sites

Many successful demonstrations have been conducted on light non-aqueous phase liquid (LNAPL) removal and plume treatment technologies. Technologies such as bioventing, dual-phase extraction, air sparging and monitored natural attenuation (MNA) were demonstrated successfully to show that LNAPL could be removed and benzene, toluene, ethylbenzene, and xylenes (BTEX) plume migration could be controlled. The expectation was that, unlike chlorinated solvents, petroleum sites could be closed after a reasonable period of time. However, in the longer term, many of these sites are still struggling to remove enough free product to meet U.S. Environmental Protection Agency and state requirements of source control (product mobility) as well as plume treatment and are continuing to face long-term management challenges. The primary objective of this project was to help the Department of Defense (DoD) and others make a stronger case for closure of legacy petroleum sites, and expand users' knowledge of high-impact methods that can better reveal the actual risk associated with LNAPL presence and therefore help stakeholders make more informed remediation decisions.

Dr. Jovan Popovic is an environmental engineer with 13 years academic and government experience specific to environmental restoration, including experience related to PFAS treatment technology development, investigating strategies for the remediation of heavy metals, chlorinated ethenes, and 1,4-dioxane, as well as investigating attenuation potentials of petroleum hydrocarbons, munitions constituents, and PFAS. Dr. Popovic conducted the petroleum impact assessment project when he was with the US Department of Defense's Naval Facilities Engineering Systems Command Center.





Assessing Post-bioremediation Sustained Treatment - Fact Sheet

In situ bioremediation (ISB) and monitored natural attenuation (MNA) are two widely used approaches to treat and control persistent matrix diffusion sources at chlorinated solvent sites. Such source zones represent a significant liability to the Department of Defense (DoD). Research has suggested that processes may be active at both ISB and MNA sites that could provide additional benefits to their application near or within low-permeability (low-K) matrix diffusion zones. The objectives of this project were: i) to develop new process knowledge on how to measure and demonstrate sustained treatment following application of ISB and ii) to evaluate and quantify MNA processes in low-K matrix diffusion zones. This Fact Sheet summarizes efforts under ESTCP project, "Performance of Two Technologies to Control Difficult-to-Treat Matrix Diffusion Zones: Post-Bioremediation Sustained Treatment and MNA in Low Permeability Units.

Travis McGuire, GSI Environmental Services, Inc.



MNA Rate Constant Estimator User's Guide and Tool

This is a User's Guide and Tool developed under ESTCP project, "Development of a Quantitative Framework for Evaluating Natural Attenuation of 1,1,1-TCA, 1,1-DCA, 1,1-DCE, and 1,4-Dioxane in Groundwater." The MNA Rate Constant Estimator is a screening model that simulates natural attenuation of dissolved compounds in groundwater. The software has been programmed using the Microsoft Excel platform and has the ability to simulate 3-D solute transport that incorporates advection-dispersion, linear adsorption, and various transformation processes using a modification of the analytical solutions developed by Wexler (1992). GSI Environmental Inc. developed the software for It is designed to support an evaluation of MNA using BioPIC, but it also functions effectively as a standalone tool.

Anthony Danko, Ph.D., NAVFAC EXWC